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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Axel Weyer

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8761

38137 7590 12/10/2010  
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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1735

MAIL DATE

DELIVERY MODE

12/10/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,799	<b>Applicant(s)</b> WEYER ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: on page 2 of the amendments to the specification in the amendment of August 5, 2010, replace the heading "BACKGROUNG" with "BACKGROUND". Appropriate correction is required.

### ***Claim Objections***

2. Claim 14 is objected to because of the following informalities: in the 3<sup>rd</sup> line of the claim, replace "and or" with "and/or". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to the 8<sup>th</sup> and 9<sup>th</sup> lines of independent claim 22, the limitations "between the teeming ladle (2) and the continuous casting mold (4)" and "in the continuous casting mold (4)" appear to contradict one another in describing the "intermediate receptacle (3)". Correction and/or clarification is/are required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 12-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Streubel et al. (WO 02/090019 A1) – also see the US equivalent reference of Streubel et al. (US 7,025,118) for translation of the German text of WO 02/090019 A1.

Regarding independent claims 12 and 22, Streubel et al. disclose both an apparatus and method of determining a position of a solidification point during continuous casting of liquid steel (abstract and Figure of WO 02/090019 A1, as well as the abstract; column 1, lines 15-26; column 2, lines 34-67; column 3, lines 1-53; column 4, lines 1-10; and Figure of equivalent US 7,025,118), in which the apparatus and method include the following features:

determining a liquid core volume of the liquid core 7 in the strand shell 8 of the cast strand 5 within a continuous casting mold 1 (column 3, lines 25-49); and

indirectly measuring the liquid core 7 (i.e. the solidification point 9 of the cast strand 5) by adjusting drive roller pairs (4,4') that support and guide the cast strand 5 based on a calculation model (for a momentary, or temporary, position of the solidification point during the casting process) via direct measurement of the adjustable drive roller pairs (4,4'), such that the liquid core 7 is continuously adjusted as dependent upon casting parameters, such as strand thickness, casting speed, casting temperature

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etc., which represent changeable locations of the solidification point in the cast strand during casting (column 2, lines 42-57; column 3, lines 50-53; column 4, lines 1-10; and Figure).

Regarding claims 13 and 14, the measurement is operable to be further based on the adjustable thickness of the strand 5 (column 3, lines 31-45) and based on change of the stop plug position (i.e. liquid steel flow through melt inlet 6 of Figure 1) in front of the continuous casting mold 1 (which would be an inherent step since solidification is controlled based on the position and force applied by the support rollers (4,4') and the plug on the continuous casting mold 1 to not allow for liquid metal backflow out of the casting mold).

Regarding claims 15 and 16, the measurement is operable to be further based on melt level and melt volume change of the receptacle adjacent the melt inlet 6, such that the solidification point 9 of the liquid core 7 in the strand shell 8 of the cast strand 5 is continuously adjustable (column 3, lines 50-53; column 4, lines 1-10; and Figure).

Regarding claims 17 and 19, the measurement is operable to be further based on continuously adjustable clamping forces and positions of the support rollers (column 3, lines 31-49; and Figure).

Regarding claim 18, the calculation model is based on automatic adjustment of the support rollers (column 3, lines 25-53).

Regarding claims 20 and 21, the support rollers (4,4') are adjusted by an adjustable piston-cylinder arrangement (i.e. position-controlled hydraulic cylinders), such that the support rollers (4,4') are arranged on the loose side of the casting mold 1,

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as this is the side where the support rollers (4,4') are operable to move into the other opposite rollers for compression on the cast strand 5 to temporarily change the local position of the solidification point 9 (column 3, lines 25-53; and Figure).

### ***Response to Arguments***

7. The examiner acknowledges the applicants' amendment provided with the request for continued examination received by the USPTO on November 9, 2010. The amendments overcome the prior claim objections. However, the applicants are referred to the specification objection (in above section 1) raised in the prior Office Action. In addition, a new objection to claim 14 and a new 35 USC 112, 2<sup>nd</sup> paragraph rejection is raised in claim 22. Claims 12-22 remain under consideration in the application.

8. Applicants' arguments filed November 9, 2010 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments on pages 7-9 of the amendment, it is first noted that the newly underlined portions in the above 35 USC 102(b) rejections section address the newly amended portions of independent claims 12 and 22. Although the applicants argue that the amendments to these claims overcome the Streubel et al reference, the examiner respectfully disagrees. In this instance, the amendment "*which represent changeable locations of the solidification point in the cast strand (1) during casting*" is not deemed persuasive to distinctly define over the prior art (Streubel et al.). Since Streubel et al. disclose moving the rollers in order to control the

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solidification point, then the solidification is constantly changing and is thus required to be adjusted in order to stay at the same location, thus meeting the claimed invention.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
Art Unit 1735

/Kevin P. Kerns/  
Primary Examiner, Art Unit 1735  
December 8, 2010